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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,806	01/25/2006	Michael Stelter	002664-27	9698

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EXAMINER
HAN, KWANG S

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
04/16/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/565,806	STELTER, MICHAEL	
	Examiner	Art Unit	
	Kwang Han	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/1/08,9/29/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

METHOD FOR PRODUCING A FUEL CELL STACK

Examiner: K. Han SN: 10/565,806 Art Unit: 1795 April 14, 2009

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because:
> It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

4. Claim 13 is objected to because of the following informalities: The word "rescess" should be spelled "recess". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 7-11 recites the limitation "first recess" in line 2 of claim 7, line 2 of claim 8, lines 2, 3 and 4 of claim 9, lines 2 and 3 of claim 10, and line 3 of claim 11. There is insufficient antecedent basis for this limitation in the claim.

7. Claims 13 recites the limitation "first channel" in line 3 and "first recess" in line 2. There is insufficient antecedent basis for this limitation in the claim.

8. Claims 20 recites the limitation "step 2b" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1, 2, 4, 6, 7-10, 12-14, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. (US 6057054).

Regarding claim 1, Barton is directed towards a process for producing a fuel cell stack comprised of providing a flow field plate (200, duplicating unit) with a first sealing surface and a second flow field plate with a second sealing surface (Figure 4a-4c), an integral perimeter seal (10, seal section) formed between the first sealing surface and the second sealing surface, and arranging a mold (template) to direct and form the desired sealing regions (5:13-30). Barton does not explicitly disclose the mold being arranged with the flow field plates to form the seal section. It would have been obvious to one of ordinary skill in the art at time of the invention to combine the flow field plate with the mold to form the region necessary for a seal since Barton teaches the mold is used to direct and form the desired sealing regions for the MEA in combination with the flow field plates. The mold would inherently provide contact with the edges of the seal section to form the seal by directing the sealant material.

Regarding claim 2, Barton discloses a stacked fuel cell assembly each comprising an MEA and a pair of flow field plates each with an integral perimeter seal (6:11-35).

Regarding claims 4 and 6, Barton discloses the mold to be removed after the sealant material has cured (5:13-37).

Regarding claims 7-10, 12, 13 and 14, Barton discloses the seal being formed adjacent a recessed groove (265, recess; Figure 4b) in a first and second flow field plates.

Regarding claim 15, Barton discloses the mold to be removed after the sealant material has been cured (5:23-25).

Regarding claim 16, Barton discloses the mold and the fuel cell stack structure to be compressed in forming the electrode layers (5:45-48, 8:30-34).

Regarding claims 17 and 18, Barton discloses a fuel cell stack (6:11-19; Figure 1) with seal sections (110) around the outer edge of the MEA (6:27-35).

Regarding claim 19, Barton discloses the sealant material to be a thermosetting material which must be cured (5:31-37).

12. Claims 3, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. as applied to claim 1 and 15 above, and further in view of Sasaki et al. (US 6649097).

Regarding claim 3, the teachings of Barton as discussed above are herein incorporated. Barton discloses the electrode layers which are in direct contact with the sealant material may be formed by carbon fiber paper (6:58-59) but is silent towards the mold being formed from carbon fiber.

Sasaki teaches a gasket formed for a porous body in a layer built fuel cell [Abstract] where the molding is carried out using the surface of a porous carbon fiber plate because the porous structure allows for the liquid sealant material to penetrate

into the porous plate to be tightly secured (5:58-61, 6:16-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a molding material comprised of a porous carbon fiber material because Sasaki teaches it allows for the liquid sealant to be tightly secured.

Regarding claims 11 and 20, Barton discloses the use of a mold for the formation of the seal section but is silent towards the use of a mandrel extending through a first recess.

Sasaki teaches a mold for the formation of a gasket comprised of a lower die (30, mandrel) which forms a cavity to allow for the mold to form the gasket (14:25-51). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a die in forming the cavity structure and mold because Sasaki teaches this method allows for the formation of a gasket to be used in a layer-built fuel cell.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. as applied to claim 1 above, and further in view of Diez et al. (US 6921602).

Regarding claim 5, Barton discloses using a flow processable elastomer for the sealant material but is silent towards material containing components for a glass solder.

Diez teaches a fuel cell unit where the sealing area is sealed with a compound comprising solder glass to provide a gas-tight zone in a gas-tight manner (13:10-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a glass solder in the sealing compound of Barton because Diez teaches it provides for a gas-tight zone for the seal.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795